Dicamba-Resistant Pigweed? Not Yet But Troubling Signs Surface

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For essentially two decades, Georgia farmers have battled glyphosate-resistant Palmer amaranth. Its impact on Georgia agriculture is so high that it is simply immeasurable.

Many lessons have been learned about weed management through all this, and decision-making has vastly improved at all levels across Georgia.

However, we have great concerns now with overuse of many herbicide chemistries that fit into our programs – especially dicamba and the PPO herbicides (such as Reflex, Cobra, Ultra Blazer, Valor and related materials).

In our research in Georgia, we now see cases where individual pigweed plants are dying but others show few symptoms.

These survivors have turned up in tightly controlled comparisons, not random field observations. Plants were the same size and spray coverage was uniform, yet some made it through.

This is is a sign of trouble, no question about it. Consider these findings a wakeup call that is ringing very faintly at the moment – yet we can't afford to ignore it.

A Real-Time Look At 2001 Pigweed Vs. 2019 Pigweed

Research in at least one other Southern state, Tennessee, mirrors our findings. Dr. Larry Steckle, University of Tennessee Extension Weed Specialist, **recently published an article addressing a similar concern with dicamba in his state**.

The photo below, part of that Tennessee study's documentation, shows the response of Palmer amaranth to 0.5 lbs/A of dicamba in two distinctly different pigweed populations.

- Plants on the left were grown from Palmer seeds that were actually collected in 2001, nearly two decades ago and before dicamba was much of a factor in herbicide programs in Georgia.
- Plants on the right were grown from seeds collected in 2019 after dicamba treatments became more commonplace.

The photo was shot 11 days after the application. On the left, plants grown from seeds collected in 2001 were decisively controlled by dicamba.

But on the right, some plants grown from those 2019 seed collections slipped past the dicamba treatment.

That qualifies as troubling. No one is yet declaring that they have found dicamba-resistant pigweed in the South. Certain criteria and protocols must be met before that classification fits. But based on the patterns we've seen with other weeds and herbicides, the sequence of events starts in much the same way.

With PPO Resistance, It's An Easy Call

Click photo to enlarge. Photo: Plants on left grown from Palmer amaranth seed collected in 2001. Plants on right grown from Palmer seed collected in 2019. Larry Steckel, University of Tennessee

What about the PPO herbicides? Again, it's a complicated process for a scientist to declare that a weed is resistant to a specific herbicide, we now have the data required to make that statement with Palmer and PPO materials.

In Georgia, we have Palmer amaranth that is resistant to topical applications of PPO herbicides. The photos below show greenhouse comparisons of two Palmer populations.

- Plants on the left were taken from a population known to be sensitive to PPO materials. Not surprisingly, they died after being treated with Reflex at 24 oz/A plus a surfactant.
- Plants on the right were treated at the same time with a 240 oz/A rate of Reflex plus surfactant. Yes, you read that correctly – 240 ounces per acre, a 10X rate. The weeds mad it through that huge rate. Control also failed with applications of Cobra and Ultra Blazer, again at ludicrously high rates.

Plants from sensitive to PPO materials treated with Reflex at 24 oz/A plus a surfactant

Plan PPO wit

It is important to note, the world of weed control in Georgia is not coming to an end. Most growers are making and implementing sound management programs. However, a few still need a wakeup call. As these initial studies show, that call is ringing off in the distance.

In 2020, do the right things:

- Include cover crops or tillage in your plan.
- Start crops clean.
- Apply two residual at-plant herbicides.
- Make sure your approach includes at least 5 different classes of herbicide chemistries.
- PULL OUT ESCAPES!

Also stay in touch with your local extension for the best management programs.